Seminar

Professional Skills Of The Graduates In Library And Information Sciences And Technologies From The Point Of View Of The Potential Employers, Students And Professors

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Abstract

Objectives - In this paper we assess the perceptions of **three different groups linked to Library and Information Science and Technology** (LIST) degree (students, teachers and employers) **regarding four dimensions** and it is based on the assumption that the alignment of these perceptions may enhance the employability of LIST graduates.

Introduction

- At the beginning of the 21st century, Portuguese higher education underwent major changes due to the adequacy of the Portuguese higher **education system to the Bologna Declaration.**

- In addition to the change in form, the assumptions inherent in higher education changed, both at the **level of teaching, with the adoption of new methodologies**, which should benefit from **Information and Communication Technologies (ICT)** as well as **information literacy** and **active teaching strategies** with the use of laboratories and tutoring, as well as **the level of learning**, with **students being responsible for their own learning**, taking a proactive posture as well as the awareness that their learning does not **end with the completion of the course**, but will take place throughout their life - **Lifelong Learning.**

- These changes, among other objectives, intended to facilitate **the employability and mobility of the youngest as clearly stated by the European Higher Education Area**

Introduction

- **Amaral** believes that the change of paradigm that underlies the effective implementation of the principles contained in the Bologna Declaration presupposes an **adaptation of the courses to the new professional and social reality.**
- Has said earlier, **information literacy is of vital importance in this context**.
- **The evolution of information science** has led to a user-centered paradigm and the enhancement of the **importance of information and the social role of success in shaping a more democratic and inclusive society.**
- **It is now certain that the work of the information professional** must be based on the **needs and interests of the users** and, at **the same time**, must support their **activity in the mediation of information**, that is, in the construction and consolidation **of mechanisms and instruments that allow users to appropriate the information they need**, to stimulate and facilitate access to and use of information.

Introduction

- **In LIST degree we believe that the training of professionals and the increase of their ICT skills is necessary** in order to achieve full valorization of information as a human and social phenomenon and that is why each year the **LIST meetings (Encontros de CTDI) are organized. For example:**
- IV **LIST** Meeting: Information mediation: cross-cutting perspectives
- V **LIST** Meeting: Information. Economy. Power
- VI **LIST** Meeting: The information professional: realities and challenges
- VII **LIST** Meeting: Information, Science and Technology: fusion for innovation
- VIII **LIST** Meeting: Digital organizations: between information and knowledge
- IX **LIST** Meeting: Organizational resilience: the power of information
- X **LIST** Meeting: Informational overload: individual and organizational views
- XI **LIST** Meeting: Information Managers for the 21st century
- XII **LIST** Meeting: Big Data: new sources of information and knowledge
- XIII **LIST** Meeting: Digital Transformation: New Challenges for Information Management
- XIV **LIST Meeting: Misinformation in the information age 03.12.20**

Introduction

- Soo, **The LIST degree as well as the Master in Business Information are both degrees of ISCAP-P. Porto (Portugal) and structured as stipulated in the Euro-Referential (2005)**.
- This is the document that to this date, **characterizes the "Skills and aptitudes of European Information-Documentation Professionals" and their "Qualification Levels of European Information-Documentation Professionals**".
- As said in the document, it is intended for a **number of categories of users (information professionals-documentation in progress, employers-recruiters, people wishing to be oriented to these activities, trainers)** and implies **various uses (writing a curriculum vitae, career advancement, self-assessment develop a training program)**.
- Their content presupposes a **certain standardization of the profession which, despite the changes, continues to have to search and find information, treat it and make it accessible to those who need it.**

Introduction

With this work we **intend to assess the perceptions of three different groups linked to LIST** (**students, teachers and employers**) regarding:

- 1. Information Management;
- 2. Communication and interpersonal relationships;
- 3. Domain and application of information technologies;
- 4. Management of the Organization.

and it is based on the **assumption that the alignment of these perceptions**, although not always perfect, may, **in our understanding, enhance the employability of LIST graduates**.

This study originated from a Spanish study published **in 2014 by Arias-Coello; Simon-Blas & Simon-Martin** where the professional skills of the graduates of the master's degree in Documentation, Libraries and Archives were identified precisely considering **the three perspectives: student, teacher and employer**.

In 2018, a communication was presented by Martins & Carvalho and, at the time, was based on **a descriptive statistical analysis of the data collected. The data collection tool was translated and adapted by us to our national reality**.

Literature Review

- **According to Ribeiro & Silva (2004, p. 4) the Euro-Referencial**, has a vision about the information and documentation professional and about his profession **that**
- **…"is defined by its fundamental mission of researching, treating, producing and disseminating information - incorporating added value - in order to meet the needs of information, expressed or not, of a target audience and proposing information resources, usually consisting of "documents" (texts, images, sounds).**
- Naturally, the constant mutability of the context and technologies requires a **persistent adaptation of the professional and the profession itself**.
- Also, according to the authors, **the components of the information professional's performance are knowledge (know-how and know-how) and skills (referred to as know-how).**

Literature Review

- **Pinto & Ochôa (2006, p. 39)** refer that “The strategies to rethink the profession imply career enhancement, both by professionals and by employers."

- The authors **Cite Lou and Pang** (2003) who categorize these strategic initiatives in three areas:
- promotion of employability;
- improvement image with employers and strengthening external contacts.

Effectively **aligning perceptions of the information and documentation profession is essential for the success of the employability indicator.**

Literature Review

- **For Ribeiro** (2008) the traditional training (custodial, historicist and patrimonialist) of information professionals centered their performance in the cultural world although, due to technological evolution, another technical approach emerged **anchored in the need to treat and make information available.**

- It would have been, however, in the middle of the century. XX that a paradigm shift occurs, as a consequence of the explosion of scientific and technical information together with the development of information technology and with the treatment and recovery of information.

- This **new context converged to a new reality, with new demands, at the level of the profession, but also at the disciplinary level and the training of professionals.**

Literature Review

- Indeed, throughout the years, programs and projects for the sensitization, training and adaptation of professionals in this area have emerged.

- However, changes **in the academic training of information professionals in Portugal are highlighted, with the main pioneers in 2001** being the **Faculty of Arts and Humanities of the University of Porto** (with a degree in Information Science, jointly taught with the Faculty of Arts and Humanities and the Faculty of Engineering) **and the School of Industrial Studies and Management of the Polytechnic Institute of Porto** (with a LIST degree and the Master in Business Information, structured as stipulated in the Euro-Referential).

Literature Review

- **It should be noted that the Euro-Referential is the document that characterizes the "Skills and aptitudes of European Information-Documentation Professionals" and their "Qualification Levels of European Information-Documentation Professionals.**
- Citing the document itself, "this Euro-Referential was carried out by professionals from a European perspective. The skills and aptitudes demonstrated in the different occupations of the information-documentation profession (archivist, librarian, documentalist, alert service, etc.) were identified and compared.

- This tool is intended for a number of categories of users. These guidelines presuppose a certain standardization of the profession which, despite the changes, continues to have to research and find the information, treat it and make it accessible to those who need it.

Literature Review

- We are not aware of studies that have similar objectives to this in national territory.
- Some studies, for **instance Pradhan (2015) and Kumar (2010**) have been carried out that show that employability of LIS graduates is around 100 % and that the **communication skills as well as information and technology (IT) skills are of great importance regarding employability.**
- The importance of hands-on practice is also present in these studies as well as the need to develop skills that are capable to adapt in a constant changing environment.
- **Good communication skills, problem solving attitude, good knowledge of IT, presentation skills, and ability to provide services with motivation and commitment are some of the characteristics that the authors consider increasing the probabilities of employment.**

Literature Review

- We believe it is important to know the extent to **which there is convergence in what concerns the immediate actors of higher education and the labor market, namely finalist students, teachers and employers, in particular with regard to the perceptions about the relevant skills for professional practice.**

- **We also believe that this convergence will facilitate greater success in employability and that actions, at the level of the degree, can be conducted to refine these perceptions and obtain the desired convergence.**

Methods

Regarding the methodology, this study assumed the application of a questionnaire via Google Forms, used and validated in the study of Arias-Coello; Simon-Blas; Simon-Martin (2014).

The questionnaire **consists of four dimensions, subdivided into 29 factors, which resulted in 29 questions:**

- 1. Information Management;
- 2. Communication and interpersonal relationships;
- 3. Domain and application of information technologies;
- 4. Management of the Organization.

The response scale to be used comprises values between 1 and 10 to rate the perceived importance of each skill, with 10 being the highest value of importance (most important) and 1 the lowest value (least important).

Methods

The questionnaire was made available electronically to the three groups:

- a) the finalist students (28);
- b) the teachers of the degree (12)
- c) the employers (here represented by the institutions of traineeship) (84) which were first contacted by telephone.

The groups a) and b) were previously contacted in person in order to raise awareness for the completion of the questionnaire that was subsequently sent by email.

- The response rate of potential employers was below expected, only 26%, the response rate of the students and teachers was close to 100% (82% and 92%).
- The data collected was later exported, SPSS was the software used for data analysis - descriptive statistics, namely mean and standard deviation, as well as Shapiro Wilk normality tests, as well as statistical tests for comparisons such as ANOVA, Kruskal Wallis, Friedman test, Wilcoxcon test and Pearson's correlation test.

Results

The results obtained are described in the next section:

With regard to the analysis of individual competencies within each dimension (tables 1, 2, 3 and 4), separating by the respondents' role **in relation to the course (Student / Teacher / Employer)** and taking into account.

The Table 1 - The importance of Information Management skills for the three groups of subjects, consists of the following questions:

Table 1 – Mean and Standard Deviation Regarding the Importance of Information Management Skills for Students, Teachers and Employers

	Role					
	Student		Teacher		Employer	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Knowledge about content management	8.30	1.460	7.73	.905	6.73	2.031
Knowledge about information sources, retrieval and its storage	8.35	1.668	8.00	1.095	6.85	2.130
Ability to analyze and synthesize information	8.43	1.502	8.00	1.000	7.12	1.840
Knowledge in data base management	8.09	1.756	7.82	1.168	7.15	1.891
Ability to manage information management and control systems	8.04	1.796	7.82	1.250	7.00	2.000
Knowledge about information providers and users	8.00	1.567	6.91	1.136	6.58	2.101
Capacity for planning information systems	8.09	1.411	7.45	1.440	6.81	2.191
Knowledge of standardized methods of description, presentation and transmission of information	8.09	2.151	7.73	1.191	7.00	1.980
Knowledge to navigate communication networks through search engines and other tools	8.70	1.743	7.55	1.635	7.04	1.990
Valid N	23		11		26	

Results: 1º Dimension - Importance of Information Management Skills for Students, Teachers and Employers

So, in the dimension: **Importance of Information Management Skills**

For students the 1st most important is

- "Knowledge to navigate communication networks through search engines and other tools"

The 2nd most important is

- "Ability to analyze and synthesize information"

The 3rd most important is

- "Knowledge about information sources, retrieval and its storage".

Results: 1º Dimension - Importance of Information Management Skills for Students, Teachers and Employers

Regarding the teachers, this group appears, globally, as a group with less dispersion in the answers **and presents two answer options as the most important:**

- "Knowledge about information sources, retrieval and its storage"
- "Ability to analyze and synthesize information"

The second most important also includes two responses, namely

- "Ability to manage information management and control systems"
- "Knowledge in database management"

The 3rd most important is

- "Knowledge about content management"
- "Knowledge of standardized methods of description, presentation and transmission of information".

Results: 1º Dimension - Importance of Information Management Skills for Students, Teachers and Employers

With regard to employers, this group presents, in general, a greater dispersion in the respondents' answers and

As the 1st most important answer is:

- “Knowledge in database management”

The second most important:

- “Ability to analyze and synthesize information”

The third most important:

- “Knowledge to navigate communication networks through search engines and other tools”.

Results: 2º Dimension - Importance of Communication Skills for Students, Teachers and Employers

Developing a similar analysis,

The Table 2 presents The of Communication Skills for the three groups of subjects, consists of the following questions:

Table 2 – Mean and Standard Deviation Regarding the Importance of Communication Skills for Students, Teachers and Employers

	Role					
	Student		Teacher		Employer	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Ability to socialize with colleagues and superiors	8.83	1.193	7.73	1.191	7.79	1.668
Ability to work as a team	9.04	1.224	7.73	.905	7.83	1.606
Ability to relate to users	8.87	1.180	7.64	1.027	7.87	1.392
Ability to communicate orally and in writing in the native language	8.91	1.379	8.09	1.136	7.58	1.640
Knowledge transfer skills	8.70	1.222	7.45	.934	7.46	1.693
Ability to train, coordinate and direct teams	8.96	1.364	7.18	.982	7.52	1.470
Ability to speak and write in English	8.39	1.828	7.82	1.328	7.48	1.537
Valid N	23		11		21	

Results: 2º Dimension - Importance of Communication Skills for Students, Teachers and Employers

So, in the dimension: the Importance of Communication Skills

For students the first most important is the

- "Ability to work as a team"

The second most important is the

- "Ability to train, coordinate and direct teams"

The third most important is the

- "Ability to communicate orally and in writing in the native language".

Results: 2º Dimension - Importance of Communication Skills for Students, Teachers and Employers

Regarding the teachers, similarly to what happens in the previous item, this group is also the one with the lowest dispersion of responses.

The 1st most important option is

- "Ability to communicate orally and in writing in the native language",

The 2nd most important is

- "Ability to speak and write in English"

As the 3rd most important this group presents two tied options:

- "Ability to work as a team"
- "Ability to socialize with colleagues and superiors".

Results: 2º Dimension - Importance of Communication Skills for Students, Teachers and Employers

Regarding employers, this group is the one with the greatest dispersion in responses.

As the most important answer, it presents the

- "Ability to socialize with colleagues and superiors"

as the 2nd most important the

- "Ability to work as a team"

as the 3rd most important the

- "Ability to relate to users".

Results: 3ª Dimension – the importance of skills in Information Technologies for students, teachers and employers

The Table 3 - The importance of Skills in Information Technologies for the three groups of subjects, consists of the following questions:

Table 3 – Mean and Standard Deviation regarding the importance of skills in Information Technologies for students, teachers and employers

	Role					
	Student		Teacher		Employer	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Domain of web applications	8.39	1.438	7.64	1.027	7.04	1.907
Knowledge of electronic resources and applications to manage a changing technical process	7.83	1.642	7.18	1.079	6.96	2.107
Sufficient technical knowledge to solve unforeseen problems	7.91	2.234	7.45	1.508	6.88	2.142
Knowledge of systems architecture	7.52	2.064	6.82	1.722	6.42	1.880
Knowledge about management and design of intranet and web pages	7.91	1.832	7.27	1.272	6.54	1.816
Ability to implement a management system	7.70	2.439	7.73	1.272	6.46	2.064
Valid N (listwise)	23		11		26	

Results: 3ª Dimension – the importance of skills in Information Technologies for students, teachers and employers

So, in the dimension: **the importance of skills in Information Technologies,** we can say that, regarding the average.

For students, the 1st most important option is the

- "Domain of web applications"

The 2nd most important is the

- "Knowledge of electronic resources and applications to manage a changing technical process"

The 3rd most important, two options arise:

- "Sufficient technical knowledge to solve unforeseen problems"
- "Knowledge about management and design of intranet and web pages".

Results: 3ª Dimension – the importance of skills in Information Technologies for students, teachers and employers

In the course of this analysis, **for teachers,** this group has less dispersion in their answers.

The most important option is the

- "Ability to implement a management system"

The second most important is the

- "Domain of web applications"

The third most important is

- "Sufficient technical knowledge to solve unforeseen problems".

Results: 3ª Dimension – the importance of skills in Information Technologies for students, teachers and employers

With regard to employers, overall, the dispersion of responses by this group was the highest.

The 1st most important option is the

- "Domain of web applications"

The 2nd most important is

- "Knowledge of electronic resources and applications to manage a changing technical process" and

The 3rd most important is

- "Sufficient technical knowledge to solve unforeseen problems".

Results: 4ª Dimension - the Importance of Organizational Management Skills for Students, Teachers and Employers

The Table 4 - the Importance of Organizational Management Skills for the three groups of subjects, consists of the following questions:

Table 4 – Mean and Standard Deviation regarding the Importance of Organizational Management Skills for Students, Teachers and Employers

	Role					
	Student		Teacher		Employer	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Ability to manage human and financial resources	7.65	2.124	6.00	1.612	6.77	2.519
Ability to manage and implement policies, deontological, social and legal codes	7.57	2.212	5.73	1.421	6.73	2.539
Ability to create and organize services for the user	8.04	1.492	7.18	1.471	6.85	2.461
Analytical ability to combine and organize complex information	8.22	1.650	7.73	1.272	7.04	2.522
Ability to manage projects	8.61	1.530	7.00	1.000	6.96	2.441
Problem solving ability	8.57	1.409	7.82	.874	7.19	2.530
Ability to analyze and organize statistical data	8.26	2.050	7.64	1.433	6.81	2.367
Valid N	23			11	26	

Results: 4ª Dimension - the Importance of Organizational Management Skills for Students, Teachers and Employers

Finally, regarding the importance of the Organizational Management Skills, in continuity with the previous analysis.

For students, the first most important is the

- "Ability to manage projects"

The second most important is

- "Problem solving ability"

The third most important is the

- "Ability to analyze and organize statistical data".

Results: 4ª Dimension - the Importance of Organizational Management Skills for Students, Teachers and Employers

For teachers who are, in agreement with what happened in the other dimensions, the group that presents less dispersion in the answers.

The first most important is

- "Problem solving ability"

The second most important is the

- "Analytical ability to combine and organize complex information"

The third most important is the

- "Ability to analyze and organize statistical data".

Results: 4ª Dimension - the Importance of Organizational Management Skills for Students, Teachers and Employers

With regard to employers, also, in line with what has happened in the other dimensions, they are the ones that present the greatest dispersion in the answers given, and for them.

The first most important is

- "Problem solving ability"

The second most important is the

- "Analytical ability to combine and organize complex information"

The third most important is the

- "Ability to manage projects".

Discussion

As said in the Introduction, the present study is based on the premise that identical expectations and perceptions of professional needs among the different actors in the training process in higher education and the consequent entry into professional life, are drivers of greater employability.

However, **the desired alignment in relation to the perceptions of the different actors in the teaching and learning process does not exist in the way it was assumed to exist**. Indeed, the gap that exists, above all, between the perceptions assumed by students and their future employers is notorious.

Discussion

So, The **research questions that guided this work were**:

Are the perceptions of students, teachers and employers, regarding different sets of skills all aligned?

As seen, they are not fully aligned, however, there is a group that is closer to the others, being the group of teachers.

Discussion

In view of the data collected and its interpretation, it is necessary to put into practice some actions that promote this alignment, **namely clarification actions directed at students and course candidates;**

in-office training sessions on the skills of information professionals and how they can work in an organization, addressing different dimensions and competencies **is another action that can have a positive impact**.

The creation of a **curricular unit in the first year aimed at bringing students closer to their employers also seems to be a viable way of promoting this connection.**

The **skills of an information professional** are broad and diverse and can be used in business in order to promote its **efficiency and this principle will be the guiding principle of this whole process.**

Conclusion

The skills currently required of the information professional are diverse and from different spheres.

The Euro-referential I-D bears witness to this. **The acquisition of them by students in the Information Science area will therefore be essential for entering the job market.**

This work was based on the premise that the perception of the necessary competences for the exercise of the information profession among the three groups involved in the teaching and learning process of the degree in LIST are properly aligned.

A questionnaire consisting of 4 dimensions and 29 factors was applied to the three groups**. However, the basic premise has not been proven**. There is no total alignment and overall the biggest differences exist between students and employers, which can be an obstacle to employability of the young graduates.

Conclusion

Based on this result, different actions such as information actions for both groups, in-office training for the employers and the inclusion of a curricular internship, although of short duration, in the first year of the degree were proposed in order to harmonize the perceptions of the groups, in particular of these two.

As a future work, it is suggested to **replicate this study after implementing the actions identified as necessary in order to identify the success of the proposed approach.**

We also want to replicate this questionnaire in **the degree of Science in Information Management of the Siauliai State College, for Students, Teachers and Employers.**

- **we count on your collaboration ☺**

References

- Arias-Coello, A.; Simón-Blas, C. & Simón-Martín, J. (2014). Competencias profesionales de los postgraduados en el Máster de Gestión de la Documentación, Bibliotecas y Archivos desde la perspectiva de empleadores, estudiantes y professores. *Revista española de Documentación Científica*, *37*(3), 059.

- Carvalho, M. (2014). *Estudo da mediação e do uso da informação nos Arquivos Distritais.* Coimbra: Universidade de Coimbra.

- Conselho Europeu das Associações de Informação e Documentação. (2005). *Euro-referencial D*. Lisboa: INCITE-Associação Portuguesa para a Gestão da Informação.

- European Higher Education Area and Bologna Process. (s. d.). Obtido 10 de Outubro de 2020, de http://www.ehea.info/page-employability-in-the-bologna-process.

- Kumar, B. (2010). Employability of Library and Information Science Graduates: Competencies Expected versus Taught—A Case Study. *DESIDOC Journal of Library & Information Technology*, *30*(5), 74-82.

- Martins, S. & Carvalho, M. (2018). Professional Skills of the Graduates in Library and Information Sciences and Technology from the point of view of the potential employers, students and professors. *EDULEARN18 Proceedings*, pp. 2814-2820.

References

- Martins, S. (2015). *Tecnologias de informação, literacia e bibliotecas do ensino superior da área Metropolitana do Porto*. Porto: Universidade Portucalense Infante D. Henrique.

- Morgado, J. C. (2009). Processo de Bolonha e ensino superior num mundo globalizado. *Educação & Sociedade*, 30(106), 37–62.

- Ochôa, P. & Pinto, L.G. (2006). Observar a profissão: fundamentos, metodologias e práticas. A imagem das competências dos profissionais de Informação-Documentação: relatório. Lisboa: Observatório da Profissão de Informação-Documentação. 29-59.

- *Pradhan, S. (2015). Study of Employability and Needed Skills for LIS Graduates. DESIDOC Journal of Library & Information Technology, 35(2), 106-112.*

- *Ribeiro, F. (2008). A formação dos profissionais de informação na Universidade do Porto: Um modelo teórico-prático inovador assente numa perspectiva integrada. http://aleph.letras.up.pt/F?func=find-b&find_code=SYS&request=000193698.* https://repositorio-aberto.up.pt/handle/10216/14050

Conclusion

Thank you soo much for your atention.

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